Granulina elliptica n. sp. and comments on the Mediterranean Pliocene species of *Granulina* (Gastropoda, Marginellidae)

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ABSTRACT: *Granulina elliptica* n. sp. is described from Early-Middle Pliocene shallow-water beds cropping out in southeastern Sicily. *G. elliptica* is characterised by markedly elliptic shape, parietal callose ridge, strongly duplicated columellar plications, coarse roundish lip denticulations. Other species are reported from the Pliocene, i.e. *G. clandestina* (Brocchi, 1814), *G. marginata* (Bivona, 1832) and *Granulina* sp.

RIASSUNTO: *Granulina elliptica* n. sp. è descritta per depositi superficiali del Pliocene inferiore-medio affioranti presso Buccheri (Sicilia sud-orientale). La nuova specie è caratterizzata da conchiglia matcatamente ellittica, da un bordo calloso parietale quasi interno all'apertura, da pliche columellari fortemente duplicate e da denticolature labiali piuttosto grosse e rotondeggianti. *G. elliptica* non mostra rilevanti affinità con altre specie del Mediterraneo o dell' Atlantico orientale. Altre tre specie del Pliocene italiano sono illustrate e commentate, cioè *G. clandestina* (Brocchi, 1814), *G. marginata* (Bivona, 1832) e *Granulina* sp. *Granulina* sp. e G. *clandestina* sono intese nel senso di Gofas (1992). La prima è una specie non ancora descritta, simile alla specie pleistocenica *G. jhomisensis* La Perna, 1999, mentre l'identità della seconda è ancora dubbia. *G. marginata* mostra delle differenze morfologiche dalla forma attuale simili a quelle note in esemplari del Pleistocene.

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INTRODUCTION

The knowledge of the Mediterranean Recent and fossil species of *Granulina* Jousseaume, 1888 has been mostly improved by recent works (Gofas, 1992; Smriglio & Mariottini, 1996; Smriglio *et al.*, 1998; La Perna, 1999). Eight living species are known; six of them range back to the Pleistocene, while three species are only known from the Pleistocene (La Perna, 1999). *Granulina clandestina* (Brocchi, 1814) and *Granulina* sp. are instead the sole species so far known from the Pliocene (Gofas, 1992). In the present work, a new Pliocene species is described from Sicily and other species from the Pliocene are illustrated and commented.

As discussed by La Perna (1999), *Granulina* is maintained in the Marginellidae, instead of Cystiscidae as proposed by Coovert & Coovert (1995).

SYSTEMATICS

Class Gastropoda Cuvier, 1797
Order Neogastropoda Thiele, 1929
Family Marginellidae Fleming, 1828

Genus ***Granulina*** Jousseaume, 1888

Granulina elliptica n. sp.
Figs 1-7

Type material

Holotype and 9 paratypes. University Paleontological Museum, Catania.

Type locality

Buccheri ("Contrada Pirazzo"), southeastern Sicily. Early-Middle Pliocene sandy beds (outcrop coordinates 37°09'.41N, 14°48'.26E).

Etymology

Latin *ellipticus* (= elliptic), due to the markedly elliptic shell shape.

Description

Shell ovoid-elongate (length/diameter ca 1.5), outline markedly elliptic. Posterior ending narrowly rounded. Maximum diameter at mid-length of shell or slightly posterior. Siphonal notch faint. Weak basal swelling on oral side. Lip thickened; denticulations notably coarse, somewhat roundish in shape. Four columellar plications, strongly divided into an outer and an inner series by a well defined sulcus. Outer plications oblique, comma-shaped. Parietal callus wide, hardly distinct. Aperture narrow. Rather thick callose ridge making the parietal region appear somewhat angulated. Surface smooth, polished, except for faint growth striae. Holotype: length 2.10 mm, diameter 1.37 mm. Largest paratype: 2.32x1.50 mm.

Distribution

Only known from the type locality. The associated molluscan fauna includes bivalves and gastropods typical of shallow-water sandy bottoms. Abundant small gastropods (*Bittium*, *Rissoa*, *Alvania*, etc.), most probably transported from nearby vegetated hard bottoms, are also present. The shells of *Granulina* may also belong to this stock.

REMARKS

At present, it is not possible to make out a marked closeness of *G. elliptica* to any other fossil or living species from the Mediterranean or the Northeast Atlantic. The present species resembles in shape the living *G. occulta* (Monterosato, 1869), which anyway differs by a distinctly posterior maximum diameter, weakly duplicated plications and faint denticulations. Parietal sulcus, callose ridge and duplication of columellar plications are frequent in *Granulina* (see GOFAS, 1992; LA PERNA, 1999). These features are markedly obvious also in the Pleistocene *G. jhomisensis* La Perna, 1999 and in the Pliocene *G. clandestina* (Brocchi, 1814), which are anyway well distinct in shape from *G. elliptica*. The coarse and roundish denticulations are instead a peculiar feature of *G. elliptica*, although somewhat strong denticulations are also present in *G. jhomisensis* and *Granulina* sp. (see below).

COMMENTS ON OTHER PLIOCENE SPECIES

Other two species were detected together with *G. elliptica*, i.e. *G. clandestina* (Brocchi, 1814) (3 shells) and *G. marginata* (Bivona, 1832) (6 shells).

G. clandestina (Figs 8-10) was treated by GOFAS (1992: 5, fig. 3), who designated a neotype. GOFAS' act gave stability to the application of Brocchi's name (ICZN, Recom. 75E), but the true identity of *Voluta clandestina* Brocchi, 1814 remains doubtful (COOVERT & COOVERT, 1995: 74). As far as we know, this species was described on an juvenile shell of *Granulina* from the Pliocene of North Italy. Anyway, the juvenile stages of *Granulina* does not provide enough features for reliable identifications. Furthermore, as proved in the present work, *G. clandestina* is not the sole species of *Granulina* from the Pliocene of Italy. *G. clandestina* of GOFAS (1992) has a pyriform shape, with a somewhat prominent posterior margin of lip. The parietal sulcus is well distinct, the columellar plications are strongly duplicated and the lip is finely denticulated. A thick parietal ridge and a wide ill distinct callus are present.

GOFAS (1992: 6, fig. 4) recognised another Pliocene morphotype, sympatric with *G. clandestina*, which was tentatively kept distinct as *Granulina* sp. In the present work, this species (Figs 11-13) was examined on material (7 shells) from the same locality studied by GOFAS (Pietrafitta, near Siena), from which he also selected the neotype of *G. clandestina*. *Granulina* sp. has a markedly thick labial varix, somewhat strong lip denticulations, fairly well duplicated columellar plications, wide and ill distinct parietal callus and a thin callose ridge. The posterior ending is markedly convex, almost rostrated. Rather than to *G. clandestina*, *Granulina* sp. appears notably similar to *G. jhomisensis*, from which it mainly differs by being more inflated, less elongate and with a thinner parietal ridge. This species would need to be formally described and this will be done when a wider knowledge of the Pliocene species of *Granulina* will be acquired.

The examined Pliocene shells of *G. marginata* (Figs 14, 15) differ from the Recent ones by being slightly smaller and with more strongly duplicated plications. In these respects, they are similar to the Pleistocene shells reported by LA PERNA (1999: 49, figs 36, 37, 41, 42), who tentatively distinguished two species within them, i.e. *G.* cf. *marginata* (Bivona, 1832) and *G.* cf. *boucheti* Gofas, 1992. Probably, this distinction is too poorly supported by morphological differences and the present Pliocene material is too scant to provide further evidence. Anyway, the distribution of *G. marginata* can be assumed as ranging back to the Early-Middle Pliocene.

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Figs. 1-7. *Granulina elliptica* n. sp. Buccheri ("Contrada Pirazzo"), southeastern Sicily, Early-Middle Pliocene. **1, 2.** Holotype, 2.10x1.37 mm. **3, 4.** Paratype, 2.12x1.37 mm. **5.** Paratype, 2.32x1.50 mm. **6, 7.** Paratype, 2.10x1.47 mm. **Figs. 8-10.** *Granulina clandestina* (Brocchi, 1814). Buccheri ("Contrada Pirazzo"), southeastern Sicily, Early-Middle Pliocene. **8, 9.** 2.10x1.52 mm. **10.** 2.02x1.50 mm. **Figs. 11-13.** *Granulina* sp. Pietrafitta, Northern Italy. **11, 12.** 2.15x1.60 mm. **13.** 2.12x1.57 mm. **Figs. 14-15.** *Granulina marginata* (Bivona, 1832). Buccheri ("Contrada Pirazzo"), southeastern Sicily, Early-Middle Pliocene. **14.** 2.00x1.57 mm. **15.** 1.75x1.45 mm.

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